

**WHAT IS CLAIMED IS:**

1. A method for transplanting insulin-producing cells comprising:
  - (a) providing a cell preparation comprising insulin-producing cells;
  - (b) performing one or more steps that increase the quantity and/or quality of endothelial cells in said preparation; and
  - (c) transplanting cells of said preparation into a host mammal.
2. The method of claim 1, wherein step (b) comprises increasing the quantity of endothelial cells in said preparation.
3. The method of claim 2, wherein increasing the quantity of endothelial cells comprises one or more of (i) adding endothelial cells to said preparation, (ii) culturing endothelial cells of said preparation, or (iii) contacting endothelial cells of said preparation with one or more growth factors.
4. The method of claim 1, wherein step (b) comprises increasing the quality of endothelial cells in said composition.
5. The method of claim 4, wherein increasing the quality of endothelial cells comprises one or more of (i) genetically-modifying endothelial cells in said preparation, (ii) culturing endothelial cells of said preparation, or (iii) contacting endothelial cells of said preparation with one or more growth factors.
6. The method of claim 1, wherein step (c) comprises transplanting by injection into the host hepatic portal vein.
7. The method of claim 1, wherein said insulin-producing cells comprise islet cells, hepatocytes, neurons, myocytes or genetically engineered cells.
8. The method of claim 1, wherein said insulin-producing cells are obtained from said host, from a distinct living donor, or from a cadaver.

9. The method of claim 1, wherein said endothelial cells are intra-islet endothelial cells, stem cells or bone marrow cells.
10. The method of claim 1, wherein said endothelial cells are obtained from said host, from a distinct living donor, or from a cadaver.
11. The method of claim 1, further comprising the step of treating said host with a pro-angiogenic composition or immunosuppressive agent.
12. The method of claim 11, further comprising the step of treating said living donor with a pro-angiogenic composition.
13. The method of claim 1, further comprising the step of providing insulin to said host.
14. The method of claim 1, further comprising monitoring insulin levels in said host.
15. The method of claim 1, further comprising monitoring glucose levels in said host.
16. The method of claim 1, further comprising performing at least step (c) a second time.
17. The method of claim 1, further comprising performing at least steps (b) and (c) a second time.
18. The method of claim 1, further comprising performing steps (a)-(c) a second time.
19. The method of claim 1, further comprising genetically modifying an endothelial cell provided in said preparation or provided from another source.
20. The method of claim 1, wherein said host is a human.
21. A method for enhancing the effectiveness of transplantable insulin-producing cell preparation comprising increasing the quantity and/or quality of endothelial cells in said preparation.

22. The method of claim 21, comprising increasing the quantity of endothelial cells in said preparation.
23. The method of claim 22, wherein increasing the quantity of endothelial cells comprises one or more of (i) adding endothelial cells to said preparation, (ii) culturing endothelial cells of said preparation, or (iii) contacting endothelial cells of said preparation with one or more growth factors.
24. The method of claim 2, comprising increasing the quality of endothelial cells in said composition.
25. The method of claim 24, wherein increasing the quality of endothelial cells comprises one or more of (i) genetically-modifying endothelial cells in said preparation, (ii) culturing endothelial cells of said preparation, or (iii) contacting endothelial cells of said preparation with one or more growth factors.
26. The method of claim 21, wherein said insulin-producing cells comprise islet cells, hepatocytes, neurons, myocytes or genetically engineered cells.
27. The method of claim 21, wherein said endothelial cells are intra-islet endothelial cells, stem cells or bone marrow cells.
28. The method of claim 21, further comprising genetically modifying an endothelial cell provided in said preparation or provided from another source.
29. The method of claim 29, wherein genetically modifying said endothelial cell comprises non-viral transformation with a gene that promotes cell growth, cell differentiation or cell survival.
30. The method of claim 29, wherein genetically modifying said endothelial cell comprises viral transformation with a gene that promotes cell growth, cell differentiation or cell survival.